

Mathematics

Mathematics is a universal part of life and plays a vital role in many aspects of modern society. Mathematics at KS3 builds on the content, knowledge and skills developed at Primary School. The KS3 Mathematics course at Dean Trust Ardwick is designed to develop pupils' confidence, analytical, research and problem solving skills, which supports pupils for progression to KS4.

Year 7

In Year 7, we give our pupils the broadest possible start to their mathematical education to ensure they are in the best possible position for the start of their GCSE courses. We begin the process of deconstructing examination questions in order to understand what topics and methods are necessary to answer these questions.

In the new curriculum, the focus for pupils is the acquisition of skills; mathematical fluency, mathematical reasoning and problem solving. Pupils are encouraged to develop and improve their mathematical reasoning and are challenged to apply their mathematical knowledge to real world examples.

Pupils will get a deep understanding of the following topics:

- Number: Four rules, negative numbers, decimals, BIDMAS, estimation and special numbers.
- Algebra: Expressions, substitution, equations and sequences.
- Geometry: 2D and 3D shapes, coordinates, graphs, area, perimeter, volume, transformations, angles and constructions.
- Ratio and Proportion: Fractions, decimals, percentages, measure, time and reading scales.
- Statistics: probability, averages, collecting data and displaying data.

Year 8

In Year 8 we continue in our journey towards understanding how to deconstruct GCSE questions. This is in order to ensure pupils are constantly improving and developing their mathematical skills.

Problem solving forms a large part of the curriculum and pupils are encouraged to use the skills that they have been taught in order to solve problems.

Pupils will access the following topics through working towards a challenging question each half term:

- Half Term 1 – Calculating with angles, solving equations, angles in parallel lines.
- Half Term 2 – Venn diagrams, index notation, product of prime numbers, highest common factors and lowest common multiples.
- Half Term 3 – Four operations with integers and decimals, percentages, interest rates and exchange rates.
- Half Term 4 – Fractions, decimals, percentages, converting between metric units, conversing between metric and imperial units, rounding, estimation and bounds.
- Half Term 5 – Calculating angles of shapes, deriving the formulae for interior and exterior angles of polygons.
- Half Term 6 – Substitution, calculating the next term in a sequence, calculating the n th term of a sequence, solving equations.

Year 9

In Year 9 the mathematics curriculum ensures topics are revisited in order to deepen pupils understanding and ensure they are confident in using the skills needed to achieve well at GCSE. A number of new topics are introduced, including inequalities. Pupils are regularly given GCSE questions and are required to fully justify their answers to these questions.

Pupils will access the following topics through working towards a challenging question each half term:

- Half Term 1 – Averages from data, averages from tables, cumulative frequency diagrams and box plots.
- Half Term 2 – Working with fractions, decimals and percentages, forming equations, solving equations, probability and choosing the correct average.
- Half Term 3 – Square numbers, proof and Pythagoras.
- Half Term 4 – Bounds, converting between units, rate of change, real life graphs, speed, distance and time.
- Half Term 5 – Scatter graphs, calculating lines of best fit, extrapolation and assessing accuracy of information.
- Half Term 6 – Solving equations, factorising quadratic expressions, calculating the nth term of linear sequences, calculating the nth term of quadratic sequences and solving simultaneous equations.

Extra-Curricular

The mathematics faculty offer a number of clubs such as Yu-Gi-Oh and Maths Art club. There are also a number of boosters every day after school which pupils can attend to get support with their classwork, homework and revision. There are opportunities for all pupils to represent the school in the annual Mathematics Challenge.